

## Twenty Responses to CAFO Defenders' Questions and Comments

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I am frequently asked to speak at public events organized by people concerned about the impacts of Concentrated Animal Feeding Operators or CAFOs on their communities. I am invariably asked to respond to comments and questions used as “talking points” by defenders of CAFOs. I thought it might be useful to share my responses to twenty of the more common questions and comments.

1. Question: *Farmers with CAFO are just trying to make a living. Why are you against farmers?*

Response: I am not against farmers. I grew up on a farm and have spent my entire professional life working with farmers. I just don't believe that operating a CAFOs is real farming. Real farmers respect their neighbors and don't knowingly pollute the air, soil, and water with noxious odors and chemical and biological wastes. There are lots of better ways to make a living on a farm than by operating a CAFO. I'm sure some CAFO operators do the best they can to manage their operations responsibly, but there are fundamental flaws in the industrial system of agricultural production, which is epitomized by CAFOs. Undoubtedly, there are good people operating CAFOs who just got caught up in a bad system. They borrowed a lot of money to build a CAFO before they discovered that operating a CAFO is not real farming.

2. Comment: *It's difficult for young people who want to farm to get a start today because of the large upfront investment in land, equipment, and such. Many farmers say that CAFOs are the only way their sons or daughters can continue the family's farming tradition.*

Response: It's true that it's easier to get upfront funding or long term loans to start a CAFO than it is to start other types of agricultural operations. Banks and farm lending agencies consider CAFO loans to be less risky because the livestock are typically produced under a comprehensive corporate contract where the corporations own the livestock, provide the feed, make all the major decisions, take most of the financial risks. The CAFO operator is typically paid a predetermined amount per head produced or assured a specific profit margin regardless of the cost of feed or market prices. It's also easy for lenders can get USDA guarantees that insure up to 80% repayment of CAFO loans. However, CAFO operators then ends up as little more than corporate hired hands with minimum wage jobs. Their main responsibilities are to keep the feeders, waters, and ventilation fans running and to dispose of the dead animals and tons of manure. Furthermore, before the loan is paid off, contractors often require major renovation, or perhaps even new buildings, which will require another long-term loan. There are far better ways to get started in farming.

3. Question: *How can young farmers possible make a living on a small farm by selling at farmers markets, producing organic vegetables, running a CSA, or pursuing any of these so-called viable alternatives to industrial agriculture?*

Response: It isn't easy, but it can be and is being done. The number of farmers markets in the U.S. has increased from less than 1,800 to more than 8,000 over the past 20 years, a four-fold increase. The number of CSAs has increased from virtually none in the early 1990s to more than 12,000 in the 2012 census of agriculture, with more than 50,000 farmers selling direct to their customers by one way or another. No one really knows how many farmers are making a living by selling to local customers because there isn't a systemic means of collecting such statistics. The key to financial success is to find customers who are willing to pay the full costs of non-industrial, sustainably produced food. Major retail market surveys indicate that more than one-third of American consumers are willing to pay premium prices for non-industrial food products that meet their standards of food safety and nutrition, and are produced by means that conform to their social and ethical values. Current production of such products make up less than one-tenth of the total retail food market. So the potential market is already at least three times as large as the current supply and is growing. It may not be easy for non-industrial farmers to connect with these customers, but the potential for economic success certainly exists.

4. Question: *Even if farmers can make a living in a small farm, it would take a lot of work to farm the way they would have to farm to make enough money to support a family. Most young people these days don't want to work that hard. How could you ever find enough young people who willing to farm to replace the animal products produced in CAFOs?*

Answer: There are many new technologies, such as portable electric fences, front-end loaders for small tractors, large round hay bales and balage for forages, hoop houses for hogs, chicken tractors, and mobile hen houses that have taken much of the drudgery out of small-scale livestock and poultry production. I certainly wouldn't expect anyone to willingly choose to go back to the ways we farmed when I was a kid. There was a lot of just plain boring, repetitive, hard work. Operating a profitable small farm is still challenging, but it doesn't involve the drudgery of farming in the 1940s or 1950s. Perhaps more important, many young people today are willing to work hard, if the work is interesting and intellectually challenging and they are working for themselves. Keeping the automatic feed and water systems working and carrying off the dead animals from CAFOs doesn't seem like a very rewarding way of life. Young people who feel a "calling" to be a farmer, and are willing to think as well as work, can make a decent living on a small farm. The promise for the future of farming is the large and growing numbers of intelligent, thoughtful millennials, many with young families, who are increasingly attending the major sustainable agriculture conferences all across the country. Most of these young people who are answering the calling to farm understand there is more to a life of quality than just making money or trying to live up to someone else's expectations.

5. Question: *People may not like the smell of CAFOs but they like their cheap bacon, ham, or fried chicken. If we didn't have CAFOs prices of meat, milk, and eggs will be sky high?*

Response: First, concerns about CAFOs are about far more than their smell. CAFOs present well-documented public health risks. Second, there is nothing to suggest that prices of animal products are significantly lower than they would have been without CAFOs. Independent producer have always been able to expand their anytime they were given an economic incentive to do so. In fact, CAFOs have expanded to gain market share during times of surplus production. They know they can outlast independent producers and drive them out of business. In addition,

there are new non-industrial/non-CAFO means of producing animal products that are already economically competitive with CAFOs. These alternatives would be even more competitive with added research and development and appropriate regulation of CAFOs to protect public health.

For example, Iowa State University research has shown that producing hogs in deep-bedded hoop houses is no more costly than producing hogs in CAFOs. These systems are more humane and allows animal waste to accumulate in the bedding to be composted before it is applied to fields. Other studies show that CAFOs may have a cost advantage of \$3 to \$6 per head over alternative means of production. A 260 lb. live hog will yield about 160 lb. of retail pork. So the “retail price” advantage for CAFOs would about 3 cents per pound. With pork prices at \$3/lb., the retail pork prices would be only about 1% for CAFOs over deep-bedded hoop-houses.

The economic advantage of CAFOs comes mainly from the industrial, assembly-line approach to production. CAFO operation consists mostly of making sure the automatic feeders and waterers are working, carrying off dead animals, and disposing of manure. This allows each CAFO operator to manage large numbers of animals and investors to own and control multiple CAFOs. Regardless, the cost of animal products would be still be affordable without CAFOs. Even if cost were 25% higher per a live hog, for example, retail pork prices would only need to be 5% higher to cover the higher cost of live hogs. The cost of live hogs make up about 25% or 1/4<sup>th</sup> of the retail cost of port, and 1/4<sup>th</sup> of 25% is only 5%.

Furthermore, there is no evidence that the transition from independent family farms to CAFOs has reduced prices of animal products at all over the past 20 years. Food prices during this period have gone up faster than the overall rate of inflation in retail prices, and animal products have often led food prices upward. Also, there is no indication that CAFOs and industrial agriculture in general have done anything to make food more accessible to poor people. The percentage of people who are hungry or food insecure in the U.S. has actually risen over the past 50 years, as family farms were replaced by industrial agriculture.

*6. Question: The global population is expected to continuing growing, at least through the middle of this century. Won't we need CAFOs and other industrial food production systems to avoid massive hunger and starvation?*

Response: First, if we were truly committed to eliminating hunger, there are many more efficient and effective ways to produce food than feeding food grains to livestock in CAFOs. A Cornell University study indicated that the U.S. could feed 800 million people with the grain currently fed to livestock. Grass-based and free range systems of livestock and poultry production allow farm animals to get a large part of their energy from forage plants, insects, and other things we humans can't eat. Modern holistically managed livestock grazing system can increase livestock production per acre or hectare by 50% to 100% over continuous grazing, without relying on synthetic chemical fertilizers or pesticides. In addition, well managed grazing system sequester atmospheric carbon, reduce pollution, and have other environmental and social benefits.

Furthermore, industrial agriculture isn't feeding the world today. The Food and Agricultural Organization of the United Nations estimates that 70% to 80% of the people in the world today get their food from small family farms, many of which we would call subsistence farms.

Furthermore, numerous studies have shown these subsistence farms could double or triple their food production without adopting industrial farming practices and certainly without CAFOs. Most global food experts have concluded that non-industrial approaches to farming and food production – such as agroecology, nature farming, permaculture, organic farming, and ecological farming – are the best hope for eliminating global hunger, not industrial agriculture. North America, Western Europe, and Australia are the major promoters of industrial agriculture.

Finally, we have been using about 40% of the U.S. corn crop to produce fuel for automobiles rather than using the cropland to produce food for people. We Americans also waste about 40% of the food that's produced here. The industrial food system responds to prospective profits, not to the needs of hungry people. CAFOs are motivated by money not mercy. Claim otherwise seem naïve if not outright hypocritical to much of the rest of the world.

*7. Question: With growing economies in densely populated countries such as China and India, the global demand for animal products will grow faster than global population. Won't we need CAFOs at least to meet the growing demand for animal protein, if we are to avoid making grazing lands out of land reserved for wildlife, conservation, and recreation?*

Response: If producers use holistically managed grass-based, pasture, free-range livestock and poultry systems of production, livestock and poultry production need not compete with wildlife, conservation, or recreational uses. For example, permaculture systems often integrate poultry and livestock into forest based system that also provide ideal habitat for wildlife and pleasant places for recreation. Holistically managed livestock grazing system can actually reclaim degraded natural ecosystems of national forests and rangelands and enhance their recreational value. Hogs and goats can be used to restore ecological health to croplands degraded by industrial agriculture. In addition, millions of acres of land could be taken out of corn, soybean, and other feed grain production, if livestock and poultry were not raised in CAFOs but on pastures. Total production of animal protein might not be as great with ecologically sound alternative production systems, but production would be sufficient to provide healthy diets for a growing global population.

*8. Question: The government is not supposed to "pick winners." Government should let the markets work. Wouldn't it be "social engineering" if the government had special environmental or public health regulations of CAFOs or if government programs support pasture-based, free range, or other alternatives to CAFOs?*

Comment: First, CAFOs are far less regulated than other economic activities that pose far less risk to the environment and public health. For example a 2400 head hog feeding CAFO, still classified as "medium" rather than "large," would produce as much potentially toxic biological waste as a municipality of 8,000 to 10,000 people. CAFOs of this size are allowed to spread their untreated raw sewage with virtually no government regulation or oversight. A fundamental purpose of government is to restrict or prohibit activities that are contrary to public interests – such as pollution of air and water and threats to public health. Any "social engineering" by government today is providing an accommodating regulatory environment for CAFOs.

If government subsidizes any economic activities, it should subsidize only those activities that serve the public interest – such as protecting the environment and promoting production of safe, nutritious food. However, virtually every major government program in the U.S. since the 1970s has subsidized or supported the industrialization of America agriculture, and CAFOs are the epitome of industrial agriculture. Any “social engineering” by government today is providing a favorable economic environment for CAFOs.

The public interest would be best served by regulating industrial agriculture, including CAFOs, the same as government regulates other industries. The public interest would be better served by subsidizing and supporting more environmentally sound and socially responsible alternatives to industrial agriculture, including alternatives to CAFOs.

9. Question: *Aren't most of the people in rural communities who oppose CAFOs actually people who recently have moved to the country and know nothing about real farming?*

Response: Many of the more vocal and active opponents of CAFOs are multi-generational family farmers. They are familiar with and supportive of traditional family farms, including those raising livestock and poultry. They typically become involved only because a neighbor or outside investor has built or expanded a CAFO close to their homes. These long-time rural residents know what real farming is about, including how real farms smell. They also know that operating a CAFO is not real farming. That said, neighbors of CAFOs who did not grow up in the area often lead the local opposition to CAFOs. They have less to lose. They generally have fewer family or long-term personal connections with others in the community who may operate CAFOs, may do business with CAFO operators, or may be friends with CAFO operators. There is less personal cost inflicted if the public opposition to CAFOs is led by newer rural residents.

10. Question: *Isn't the opposition to CAFOs based mainly on inaccurate information spread by environmentalists and animal welfare groups who use their opposition to CAFOs to raise money? Wouldn't you agree that decisions about agriculture should be based on “sound science?”*

Response: Yes, I agree that decisions should be based on good information, including “sound science,” and so to most opponents of CAFOs with whom I have met. In the early days of chicken CAFO, back in the 1950s and 1960s, there wasn't a lot of scientific research on the impact of CAFOs on the natural environment, human health, or rural communities and economies. By necessity, the early opposition to CAFOs arose mainly from personal experiences of people who were forced to live near CAFOs. Scientists, particularly agricultural scientists, were unwilling to do the research that would validate or refute their personal testimony. Authoring a scientific report that documented the ecological, social, and economic risks of CAFOs could damage or even end an academic career. Over time, scientists in highly respected public health institutions, rural socialists, anthropologists, and environmental scientists began doing the research that agricultural colleges would not do. We now have more than 50-years of scientific documentation of the negative impact of CAFOs on public health, the natural environment, and economic and social well-being of rural communities. The results have been every similar for poultry, beef

cattle, hogs, and dairy cattle. Environmental and other nonprofit organizations are simply using this information to support their public service missions.

11. Question: *Isn't a lot of the public health research based on personal reporting of symptoms, such as respiratory and neurological problems, rather than well-designed scientific studies? Couldn't these symptoms be irrational emotional reactions of people living near CAFOs rather than real health problems?*

Response: The symptoms reported by people living near CAFOs are generally consistent with chemical and biological contaminants often found in the air and water near CAFOs. It's very difficult to link environmental health problem to specific sources. However, symptoms reported by neighbors of CAFOs are generally consistent, from a scientific perspective, with symptoms that might be expected from living near CAFOs. If these symptoms were simply a matter of irrational or emotional neighbors, then CAFO operators must have a knack for consistently locating CAFOs near the homes of irrational and emotional people. People do tend to get emotional when their health and well-being is threatened. However, the opposition to CAFOs is confirmed by an abundance of "sound scientific" information.

12. Question: *If all of this scientific information is available, why does the controversy continue?*

Response: The CAFO controversy continues because agricultural operations, natural ecosystems, and human communities are very complex systems, making it is very difficult to isolate specific causes and effects or to link specific problems to a specific source. Scientists who have financial or political connections with industrial agriculture advocates, including agricultural scientists in Land Grant Universities, have persistently tried to cast doubts on legitimate concerns about the negative impacts of CAFOs. Those in universities with ties to agri-industry have been reluctant to do CAFO related research because objective findings could threaten their careers. Others have simply bought into the industrial agriculture myth of economic destiny and necessity. As a result most of the objective research, the really "sound science," has been done by the public health departments or institutes of major medical schools, such as Johns Hopkins University, the University of North Carolina, and University of Iowa. Sociologists and anthropologist also are less vulnerable to corporate pressure and have done some excellent socioeconomic studies of the impacts of CAFOs on rural economies and communities.

13. Question: *Obviously, CAFOs are legal means of agricultural production. As long as CAFO operators don't break any laws, shouldn't they be allowed to operate without being harassed by their neighbors or other CAFO opponents?*

Response: The fact that something is legal in general doesn't make it ethically or morally right in any particular situation. When a CAFO is operated in way that creates a legally defined nuisance to its neighbors, that particular CAFOs is not even legal – let alone ethical. But, the neighbors have to sue the operator to protect themselves. The political proponents of CAFOs in various states, including Iowa and Missouri, have even changed nuisance laws to make it more difficult to sue infringing CAFOs and to severely limit financial judgments against CAFO operators. Even when the negative impacts on neighbors don't rise to the legal definition of nuisance, the

operator doesn't have a moral or ethical right to threaten or diminish his or her neighbors' property values, physical health, and quality of life. If legally permitted CAFOs, in general, were actually operating in "socially responsible" ways, there would not be the widespread opposition we see today from well educated, informed, community-minded people – including multi-generational family farmers.

14. Question: *Some opponents of CAFOs just want to get rid of animal agriculture. Aren't you really just trying to turn us all into vegans or vegetarians?*

Response: Some opponents of CAFOs, such as PETA and some people in the Humane Society of the US, do believe that animal agriculture is ethically wrong. They see opposition to CAFOs as a means of creating opposition to animal agriculture in general. However, the most important opposition to CAFOs is coming from people who concerned about other issues, such as public health and the future of rural communities. Less than 3.5% of Americans are vegetarians and less than 0.5% are vegans, so opposition to CAFOs is not a vegan or vegetarian movement.<sup>[1]</sup> That said, people certainly don't have to be vegans or vegetarians to be concerned about animal welfare. I grew up on a dairy farm, worked for a large meat packing company, and spend half of my 30-year academic career as a livestock marketing specialist. I am an advocate of animal agriculture as an essential part of sustainable agriculture. If animal agriculture producers are actually concerned about the future of animal agriculture, they need to adopt "socially responsible" alternatives to CAFOs. Over time, more and more people will quit eating animal products, if the only animal products consumers can buy are produced in CAFOs. The problems of CAFOs are systemic – they can't be solve by mitigating symptoms. Animal agriculture needs to abandon CAFOs as a failed systems of animal agriculture – if there is to be a future for animal agriculture.

15. Comment: *Critics of CAFOs are always calling for more regulation of CAFOs, which would just mean more useless paperwork for farmers. Farmers are already overregulated; we need less government interference in farming, not more.*

Response: Farming is probably the least regulated sector of the U.S. economy. This was justified as long as traditional family farming was the dominant system of agricultural production. Traditionally, farmers could be trusted to be good stewards of the land and responsible members of their communities – and many farmers still remain true to these values. However, CAFOs are not farms, they are bottom-line businesses. CAFO operators are forced to give the economic bottom line priority over everything else if they expect to keep their corporate contracts and stay in business. CAFOs are being regulated as they were traditional family farms, but they are far more like factories than farms and should be regulated like other industrial operations. A 2400 head hog CAFO, which has virtually no regulation, produces as much biological waste or raw sewage as a municipality of 8,000 to 10,000 people. A municipality of this size would not be allowed to spread or knife-in its raw sewage on vacant city lots and fields surrounding the town. However, that is basically what CAFO operators do when they use raw manure to fertilize their crops. One of the most fundamental responsibilities of government is protection of public health. In the case of CAFOs, the lack of effective regulation is a failure of governance.

16. Question: *Most CAFO operators are at least required to develop manure management plans to protect the environment. Aren't CAFO operators at least doing a better job of managing manure than traditional farmers who often produced animals in bare lots on hillsides draining into streams? Many even let their animals run in streams.*

Response: Some CAFO operators may be better manure managers than some independent farmers, but overall, CAFOs apparently are not doing well as the independent family farms they have displaced. First, manure management plans obviously don't place effective restrictions on CAFO operators or there wouldn't be so many complaints about odors when operators are spreading manure. Such complaints were rare in the days of independent family farms. Also, if manure management plans were adequate, there wouldn't be so many instances of water pollution that are linked to CAFOs. According to the Iowa Department of Natural Resources (DNR) the numbers of "impaired water" in the state of Iowa has increased more than four-fold since the late 1990s. This was a time during which hog CAFOs were replacing independent family hog farms and corn and soybean production was expanding to meet the growing demand for feed grains as well as biofuels. Nature is capable of assimilating reasonable amounts of animal waste. In fact, a variety of biological species in living natural ecosystem thrive on waste from other species. The problem with CAFOs they concentrate more waste in specific places than nature can mitigate or use.

17. Comment: *The Iowa DNR has pointed out that the number of "impaired waters" is not a statistical indicator of water pollution. Isn't it misleading to refer to the increased number as an indication of increased water pollution by CAFOs and industrial agriculture.*

Response: The number of "impaired waters" is not a statistically valid estimate of a state's polluted waters. However, increases in the number of impaired waters in Iowa is nonetheless a strong indication that water pollution in Iowa has increased dramatically since the late 1990s. The same would be true for any state with a similar trend in impaired waters. Under the Clean Water Act, states are required to report the number of impaired waters to the EPA on an annual basis. Being identified as an "impaired water" simply means that the state DNR has concluded that a water body is sufficiently polluted to require a "water quality management plan" under the Clean Water Act. If the water is polluted by what DNR determines is a single catastrophic event, such as a manure spill, is does not get placed on the list. Such pollution does not result from the lack of a plan but from a violation by specific facility. If it is polluted by an uncontrollable natural situation, it is not placed on the list. The list only includes waters that could be protected by implementing a water quality management plan. More waters are added to the list was more waters are determined to be polluted.

The Iowa DNR relies data gathered by a number of different agencies to develop its list. An increase in monitoring sites accounts for some of the increase in water impairments in Iowa. However, the Iowa DNR confirmed in 2008 that their monitoring stations had been stable for the past few years, so additional monitoring sites probably does not account for many of the additional impairments since that time. Waters are taken off the list as water quality management plans are developed for specific waters, regardless of whether the plans are ever implemented – which neither the DNR nor EPA has the resources to confirm. The Iowa Farm Bureau has claiming water quality improvement based on data reported by the DNR from 25 monitoring



sites over a 10 year period that other monitoring data has indicate was an aberration rather than being typical of a continuing upward trend in water impairments. The latest EPA report identifies more than 800 impaired waters in Iowa, which reflects a continuing upward trend passed on hundreds of monitoring sites over a period of nearly 20 years. The fact that during this period almost five times as many streams have been added to Iowa's impaired waters as have been removed indicates an increasing water quality problem as Iowa as Iowa's independent family livestock and poultry operations have been replaced by CAFOs.

18. Question: *Farmers have always known that animal manure is valuable fertilizer. Why would farmers with CAFOs waste money and risks polluting streams and groundwater by spreading more manure than their crops were able to use as fertilizer?*

Response: Despite claims to the contrary, it makes economic sense to apply more fertilizer than crops can effectively use, whether as commercial fertilizer or animal manure. This results from the inherent uncertainty of overall growing conditions and the low cost of additional fertilizer relative potential value of additional crop yields. For example, an added pound of nitrogen fertilizer per acre might be expected to add an additional bushel of corn per acre, if other growing conditions such as rainfall and temperature are favorable. An added pound of nitrogen fertilizer might cost as little as one-tenth of the value of an added bushel of corn. So, if manure is applied at the economic optimum rate relative to nitrogen contend, nine out of ten years there will be more nitrogen in the manure than the crop can use. The added corn yield in the tenth year will more than pay for cost of excess nitrogen in the other nine. The total amount of economic over-application depend of the variability of crop yields. Also, CAFO operators often have "excess" manure -- meaning more manure than they can dispose of without paying someone to take it. In these cases, the "marginal cost" of adding manure is zero, or negative, providing even more economic incentive to over-apply manure.

Perhaps more important, CAFOs require large amounts of feed grains, which are typically supplied by corn-soybean crop rotation. This crop rotation is an inherently "nutrient leaky" system. It inevitably allows nitrogen and other nutrients to leach into groundwater and surface water during winter months when nothing is growing in the fields. Biological and chemical activities in soils are continually releasing nitrogen and other minerals from organic matter and minerals in the soil. Whenever crop roots are growing in the soil, the crop is able to absorb and store or utilize these nutrients to support crop growth. During winter months, after crops have been harvested and before new corps are planted, there is nothing growing to utilize the nutrients, so they get flushed by rainfall into nearby streams and groundwater. Winter cover crops can reduce this kind of water pollution but cannot completely eliminate it. Crops use far less fertilizer at emergence and in early stages of growth than they need as they approach maturity. It is it economically practical to apply fertilizer or manure in incremental rates during the growing season to match the growth of annual crops. So intensive livestock and crop production, which is epitomized by CAFOs and the corn-soybean rotations that feed them, will always be a major source of pollution for groundwater and streams. The ultimate solution is to base livestock production on perennial crops, such as permanent pastures, which maintain a stable root mass to absorb the continual release of soil nutrients.

19. Comment: *Opponents of CAFOs seem to believe that CAFO operators mistreat their farm animals. Animals in CAFOs typically are raised indoors where they are protected from harsh weather and kept in a clean, climate controlled environment. Isn't this a lot more humane than the previous practice of raising animals outside during harsh weather?*

Response: First, the living environment inside a CAFO may appear to be clean and comfortable, at least whenever cameras are allowed inside. However, this doesn't mean that the environment is healthful. The chemical and biological air pollutants created by CAFOs are most intense and dangerous inside the building and confined areas where the animals are raised. Public health research has clearly documented that people who work in CAFOs tend to have respirator problems and a variety of other health concerns more frequently than the general population. Workers in CAFOs can escape the unhealthy environment when they are not at work, but the animals cannot. Large ventilation fans are necessary to keep the environment in confinement buildings even livable for the animals. If the electric power goes off and those fans quit running, thousands of animals may die within hours. This is hardly a healthful environment, no matter how clean and comfortable it may appear.

Second, farm animals prefer and require very different environments for comfort than do humans. For example, hogs are unable to sweat and prefer to roll in mud to cool their bodies during warm weather. They also like to dig around in the soils to find grubs and roots, which they apparently prefer to commercial feed. Hogs are also social animals and like to interact with other hogs in an environment that allows them to freely move about. So, a hog covered in mud and rooting around in open field is likely far more comfortable and content than a hog in freshly cleaned CAFO. Chickens also prefer to scratch in the dirt for insects and other natural sources of food and take "dust baths." Cattle are ruminants and need to be free to graze on pastures where they can ruminate, rather than being force fed high-energy rations in a crowded feedlots. Painful management practices, such as de-beaking of chickens and removing tails of hogs, are necessary to protect animals from each other when they are forced to live in crowded, stressful environments. Obviously, animals raised in climates for which they are not well adapted sometimes need extra protection from the elements. But the more closely the animals' environments resembles the conditions under which their species evolved, the more comfortable they are likely to be. None of the natural environments preferred by farm animals remotely resembles the environments of CAFOs.

20. Question: *CAFO operators have to keep their animals healthy so they will grow quickly and produce efficiently if they expect to make money. Don't CAFO operators have an economic incentive to treat their animals humanely?*

Response: The fact that animals in CAFOs gain weight quickly and produce efficiently doesn't necessarily mean they are healthy. The positive correlation between seriously overweight people, particularly children, and chronic human illnesses clearly confirms such a possibility. CAFOs rely on technologies such as antibiotics, vaccines, and powerful ventilation systems to keep disease risks and air pollution at "economically acceptable" levels. Sick and dying animals are simply an unavoidable economic costs of doing business with CAFOs. People who operate CAFOs may actually care about the well-being their animals and their neighbors, but their

industrial system of production is simply not compatible with either animal welfare or human health. CAFO can remain profitable only because operators send animals to slaughter at young ages, hopefully before chronic illness results in visible illness or death. The natural lifespan of a chicken is 7 to 20 years. A broiler chicken typically is sent to slaughter at 6 to 8 weeks and laying hens at around 18 months. The average lifespan is 15 to 18 years for healthy cows on traditional family farms. A dairy cow in a CAFO lasts only 4 to 5 years, and beef cattle typically are slaughtered at less than 2 years old. Hogs can live 10 to 15 years or longer under natural conditions but typically are slaughtered as less than 6 months. Animals raised in CAFOs are found to have abnormally large numbers of diseased livers and other signs of chronic illness when they are slaughtered. Most animals raised in CAFOs simply aren't allowed to live long enough to die of their chronic illnesses. More than 50 years of farm animal research has verified that the severe confinement of intensive animal production systems invariably leads to increased animal stress and reduced animal welfare. The physical and mental welfare of stressed, sick, and dying animals apparently is given little consideration other than impacts on the economic bottom line.

*Concluding comment:* Animal welfare, perhaps more than any other public concern, threatens the future of animal agriculture. Some people feel that animal agriculture is inherently inhumane, even immoral, because farm animals are killed or otherwise sacrifice their lives in providing food for humans. However, the vast majority of people concerned about the humane treatment of animals understand the unique value of animal-based food products and are not opposed to animal agriculture. They understand that every living thing survives and thrives by eating foods that require the sacrifice of other living things – plants as well as animals. These people just want the animals that provide their food to be healthy and to be treated with dignity and respect – to be treated humanely. Of greatest concern to those involved in animal agriculture, many of these omnivores have begun rejecting products from animals produced in CAFOs. Some have become vegetarians or near-vegetarians because of the way animals are treated in CAFOs. Many more would do likewise, if they actually knew how animals are treated in CAFOs. Many more Americans almost certainly will become vegans and vegetarians if their only options are animal food products that originate in CAFOs. The future of animal agriculture depends on replacing CAFOs with a system of animal production that is not only ecological sound, socially equitable, and economically viable but also an animal agriculture that is humane.

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